



The health impacts of a low carbon future transport system

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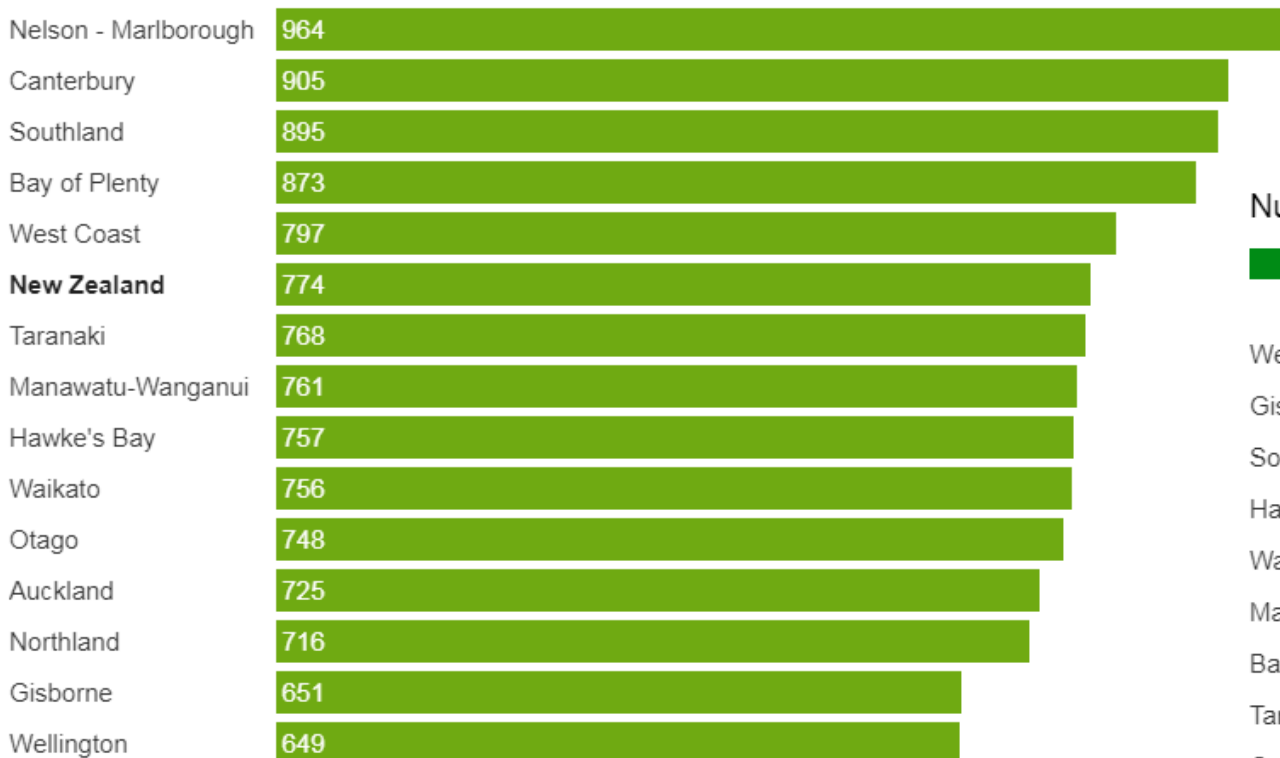
Kaitohutohu Matua Pūtaiao | Chief Science Advisor, Te Manatū Waka | Ministry of Transport

A no/low carbon future transport system

- Electric vehicles
- Walking and cycling
- Public transport

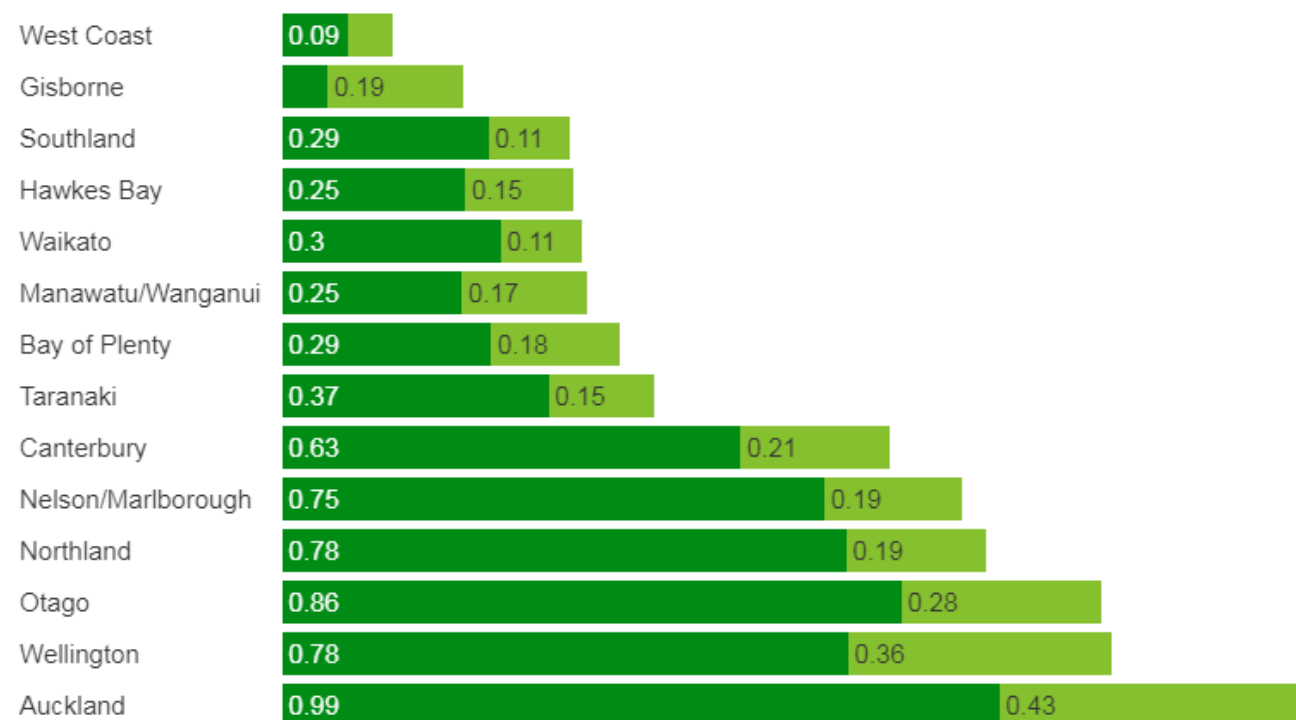
Electric vehicles

Number of light vehicles per 1000 population in New Zealand, by region, 2016



Number of electric vehicles per 1000 population in New Zealand, by region, August 2017

■ pure electric ■ plug-in hybrid



Electric vehicles

- No vehicle air pollution would annually save approx:
 - 250 premature deaths
 - \$1bn in social costs
- Less reliant on imported finite fossil fuels
 - Increased resilience

Walking, cycling and public transport

Public transport is active

"a transit trip involves 1250 steps, required to access and egress the network as well as to transfer between routes or modes [a round trip (2500 steps)] accounts for 25% of the recommended volume of physical activity per day" Canada

Transport Policy 18 (2011) 800–806



Contents lists available at ScienceDirect

Transport Policy

journal homepage: www.elsevier.com/locate/tranpol

Walking to transit: An unexpected source of physical activity

Catherine Morency^{b,c,*}, Martin Trépanier^{a,b,c}, Marie Demers^{b,d}

Preventive Medicine

Volume 99, June 2017, Pages 264–268



Analyzing the impact of public transit usage on obesity

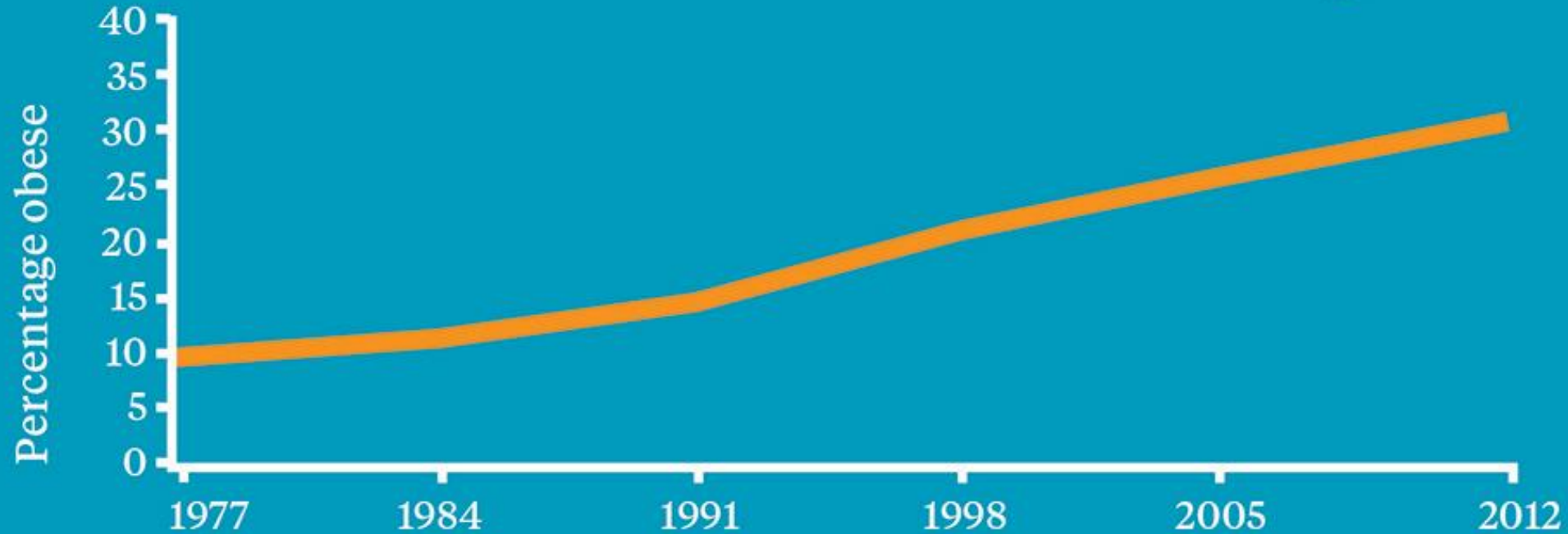
Zhaowei She^a, Douglas M. King^b  , Sheldon H. Jacobson^c



Ministry of Transport
TE MANATŪ WAKA

Obesity

New Zealand has the third highest adult obesity rate in the OECD and our rates are rising



Ministry of Health. 2015. *Understanding Excess Body Weight: New Zealand Health Survey*. Wellington: Ministry of Health.

Transport and obesity

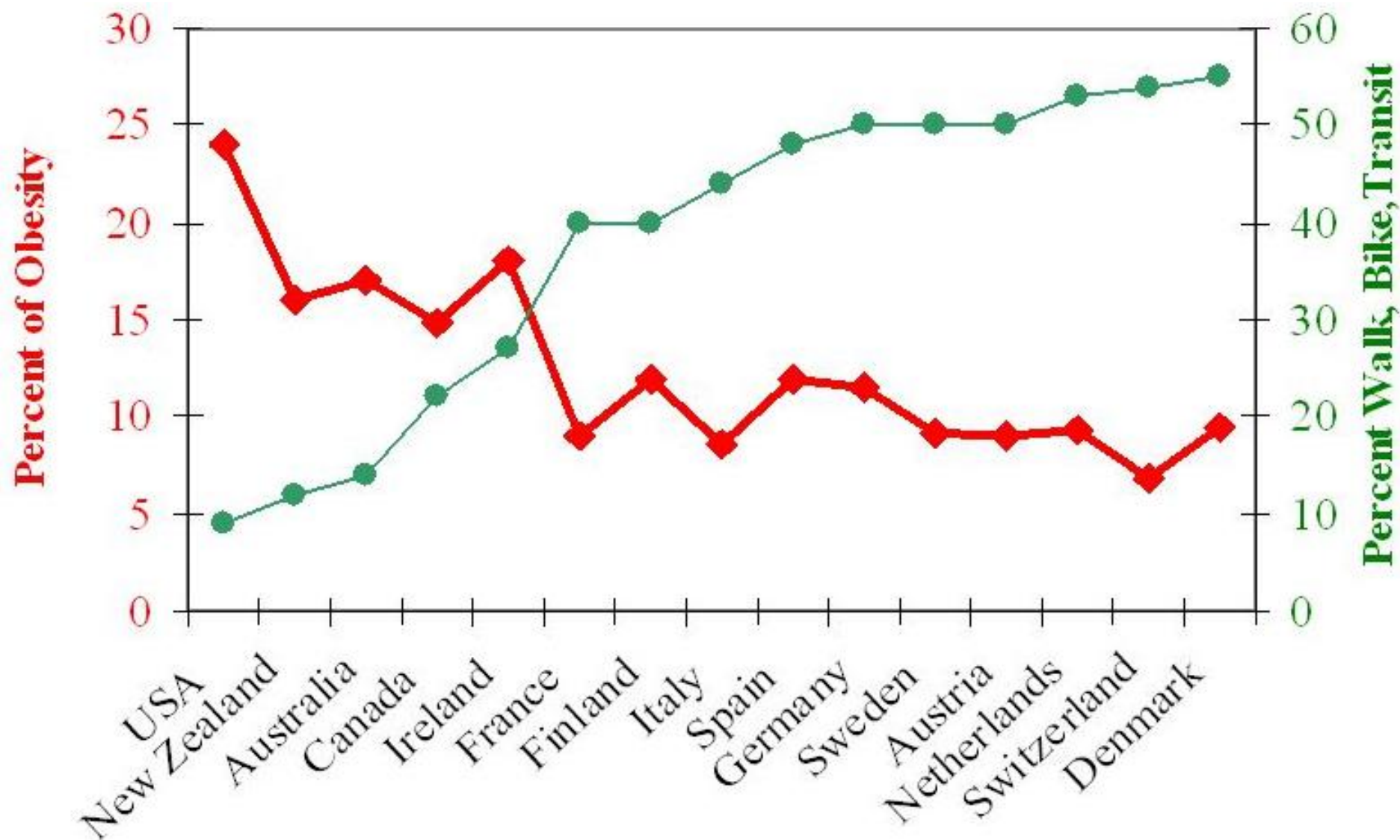
Belfast
Telegraph.co.uk Friday 27 March 2015

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Active commuters 'have lower BMI'



Obesity Walk, Bike, Transit

Wellbeing

- Compared to driving, wellbeing was higher when using active travel or public transport.
- Use of active travel reduced the likelihood of two specific GHQ12 psychological symptoms.
- Switching from car driving to active travel improved wellbeing.
- Wellbeing increased with travel time for walkers, but decreased for drivers.



Preventive Medicine

Volume 69, December 2014, Pages 296–303



Does active commuting improve psychological wellbeing?
Longitudinal evidence from eighteen waves of the British
Household Panel Survey

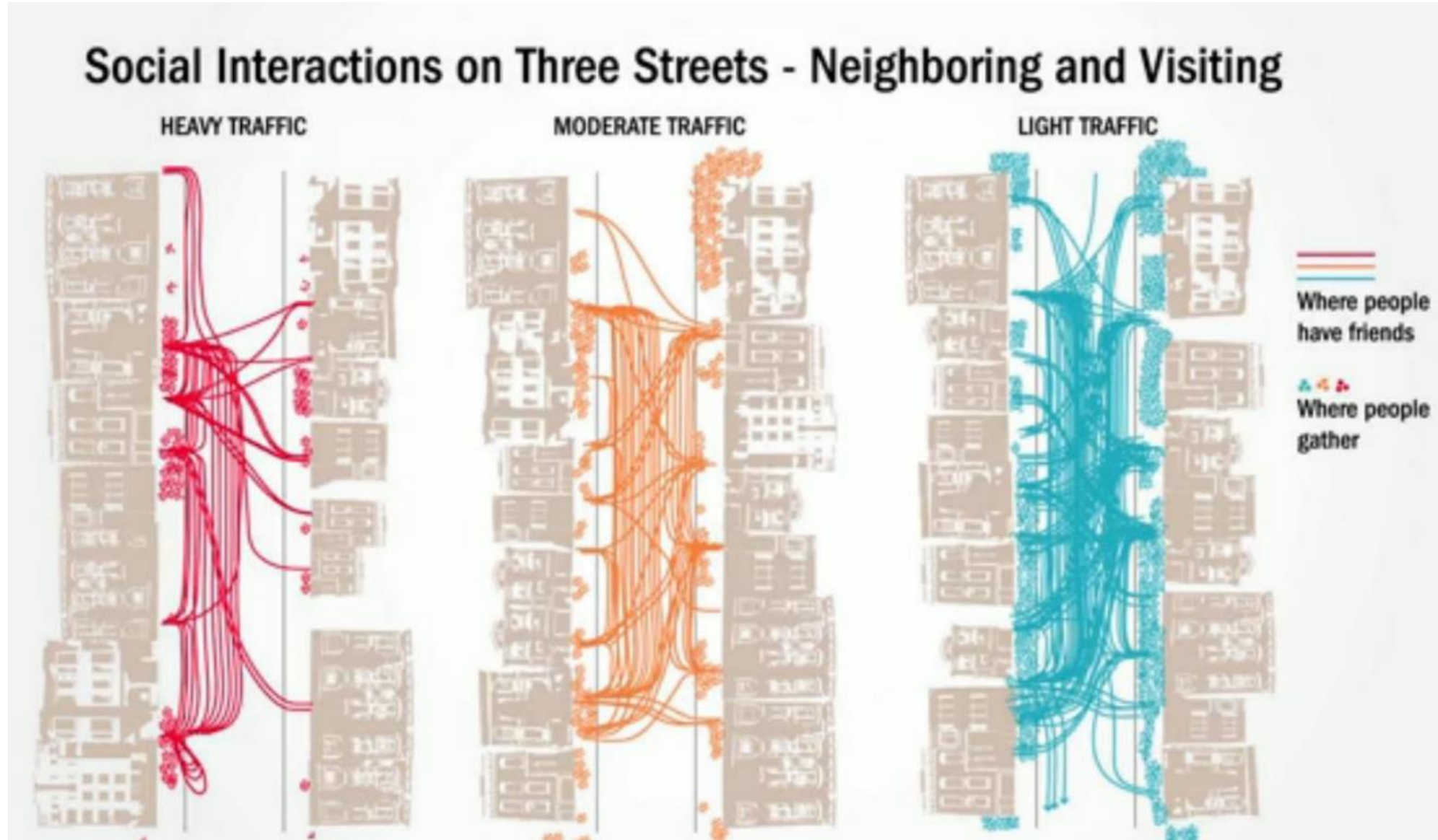
Adam Martin^{a, b},  , Yevgeniy Goryakin^{a, b},  , Marc Suhrcke^{a, b, c},  

Traffic and community



**Donald Appleyard,
1981, Livable Streets**

Traffic levels: 16,000,
8,000 and 2,000 vehs
per day



Traffic and community

LIGHT (< 500 vpd)



5.1 average connections

"We have great neighbours and live in a safe street"
"I enjoy talking with my neighbours"

HEAVY (8,400-14,000 vpd)



2.1 average connections

"My street is a car thoroughfare"
"Lived here over 35 years, a decline in people talking to neighbours and children playing"

MODERATE (1400-2500 vpd)



5.9 average connections

Wiki J, Kingham S and Banwell K, Re-working Appleyard in a low density environment: An exploration of the impacts of motorised traffic volume on street livability in Christchurch, New Zealand. World Transport Policy and Practice Volume 24, 1, 60-68.



Jesse Wiki

Community: Christchurch research

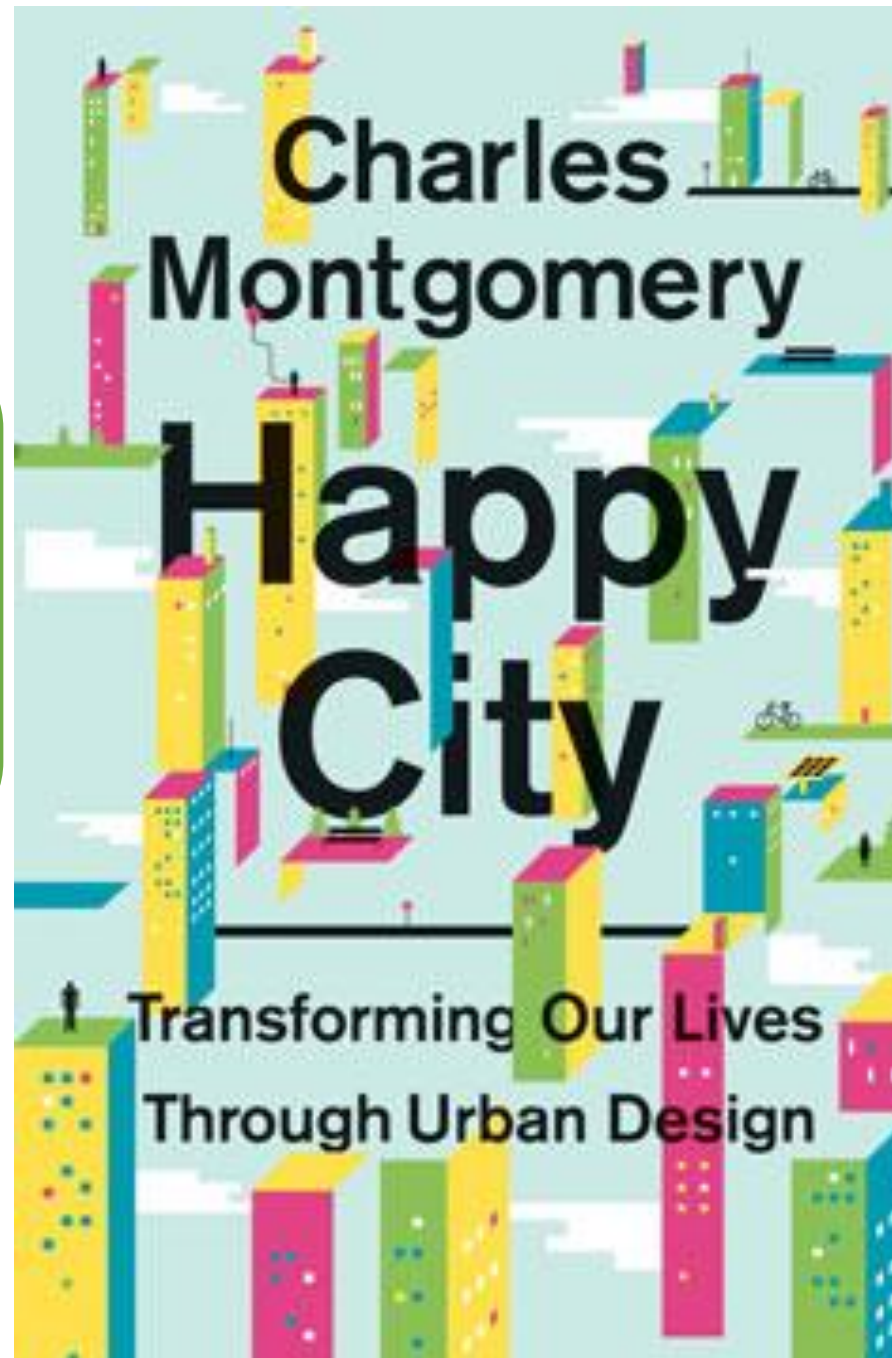
- **Intimate streets** – cul-de-sacs, laneways, back sections
 - *“Our street is wide so we don’t know each other”*
- **Walkable** – safe, attractive and connected
 - *“Because walking somewhere you see people and that is really important to us to see people and have that eye contact and being human together”*
 - *“It can take a long time to get to the shops unlike the places with fences and garages”*
- **Local** - community hubs, library, pools, parks, recreation areas
 - *“If you have to get in your car it’s not local”*
 - **Bumping places**
 - **Gathering places**



Karen Banwell

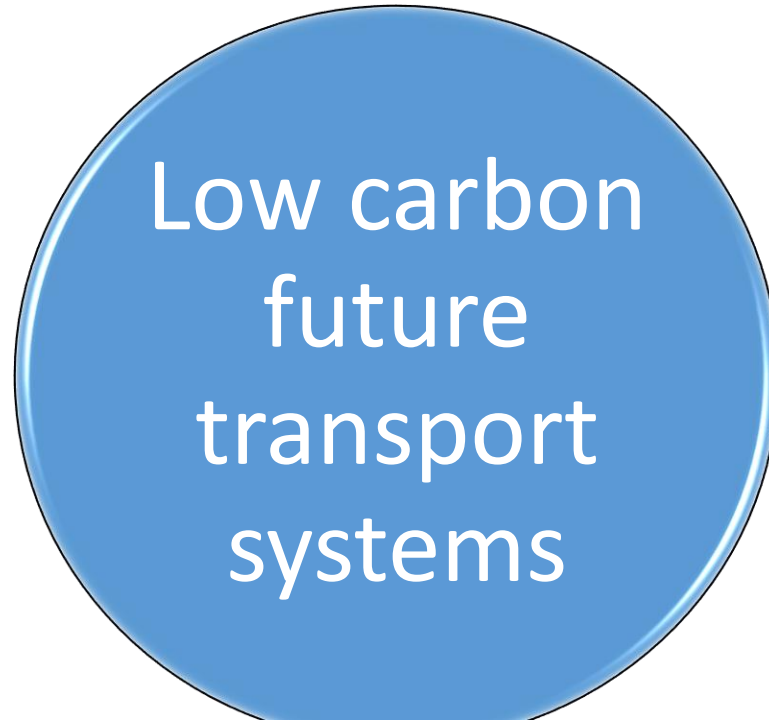
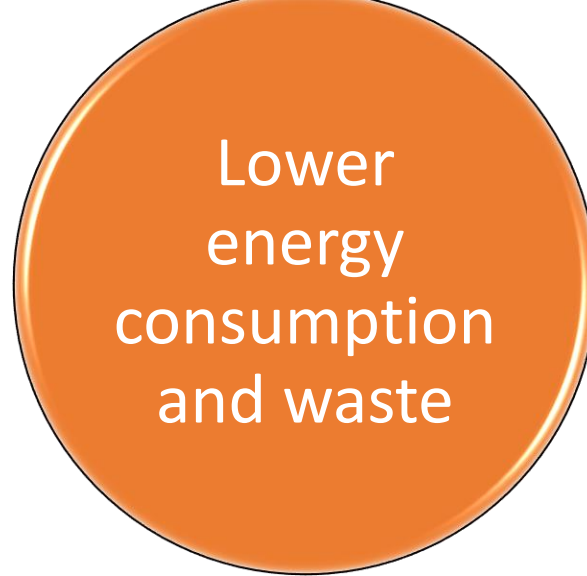
Happy cities

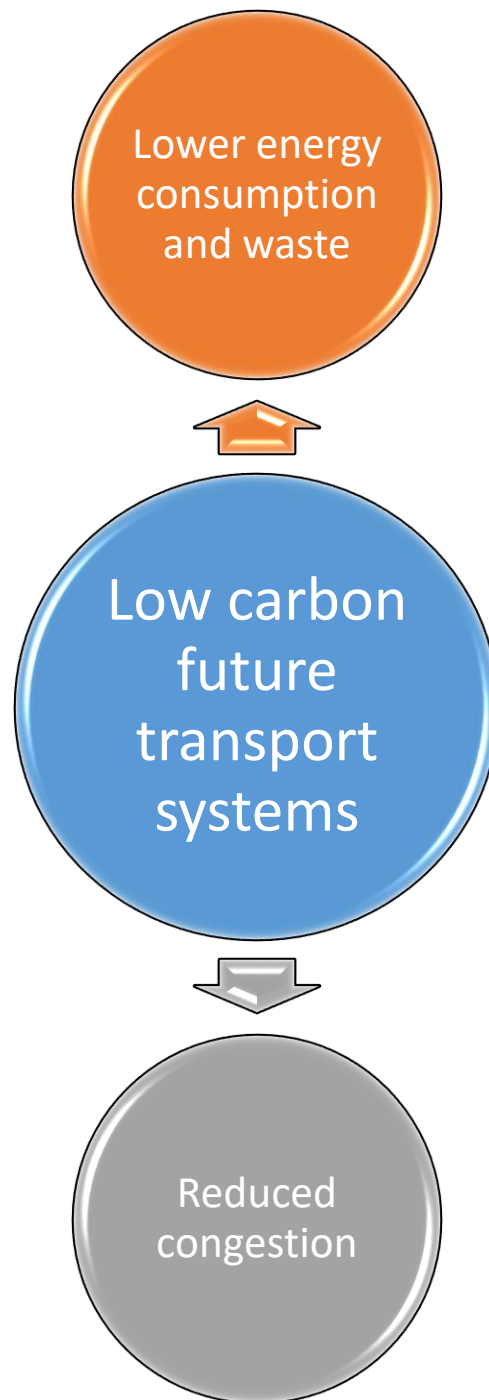
- Close proximity to facilities
 - e.g. schools, shops, job
- Walkable
- Good public transport
- Low/slow traffic
- Diversity of housing types
- Low or no fences
- Green (and blue) space

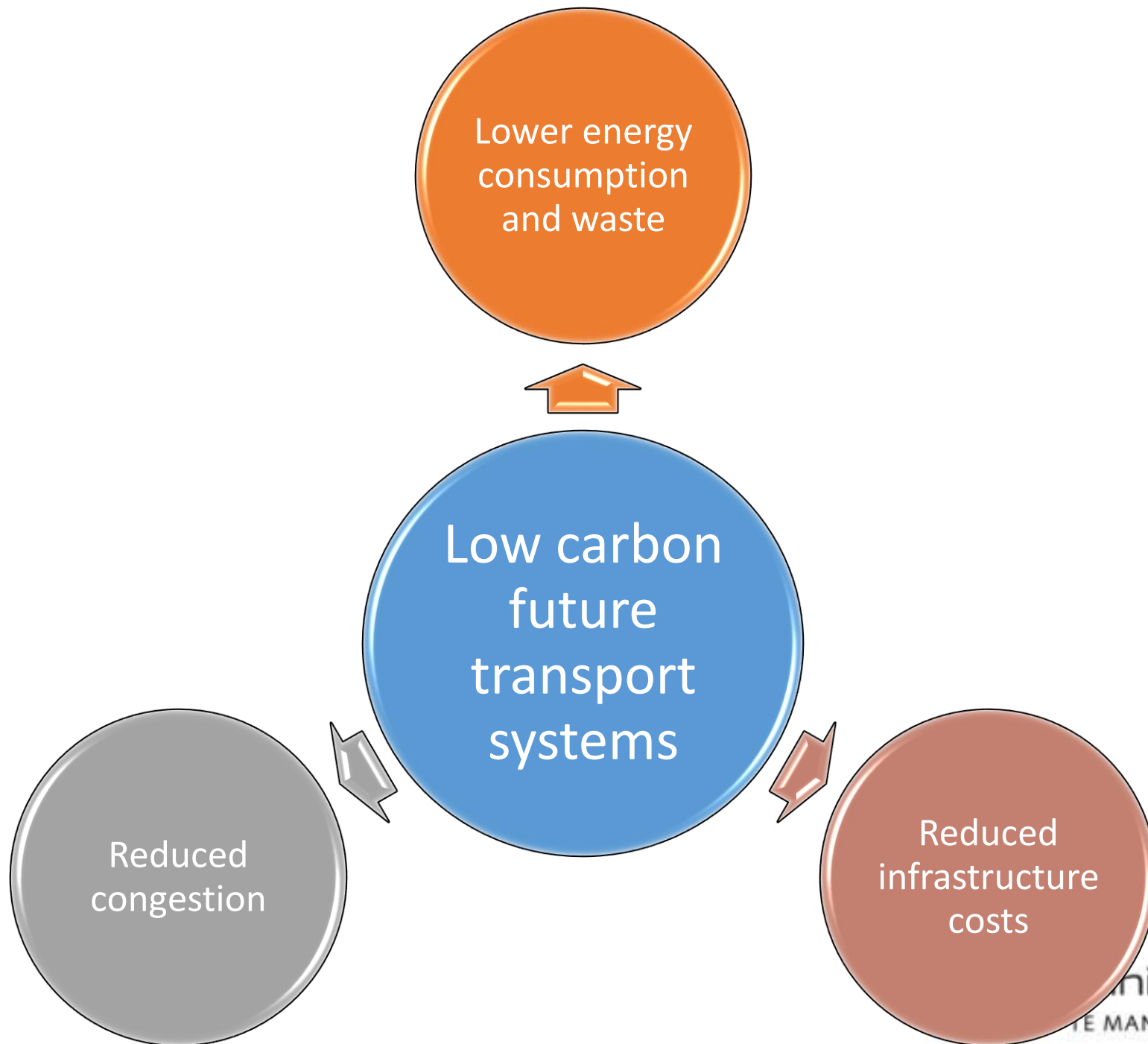


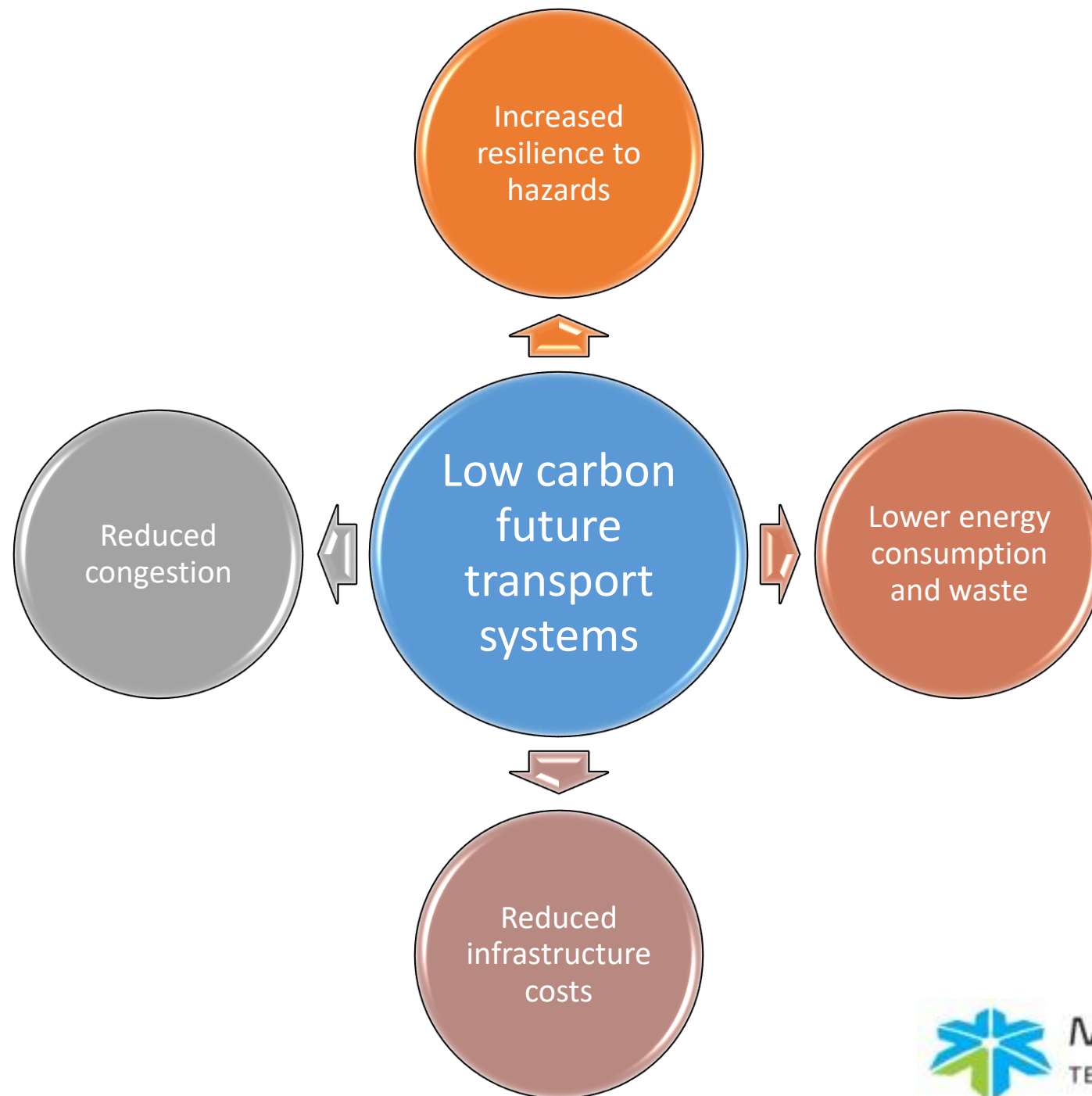
Co-Benefits

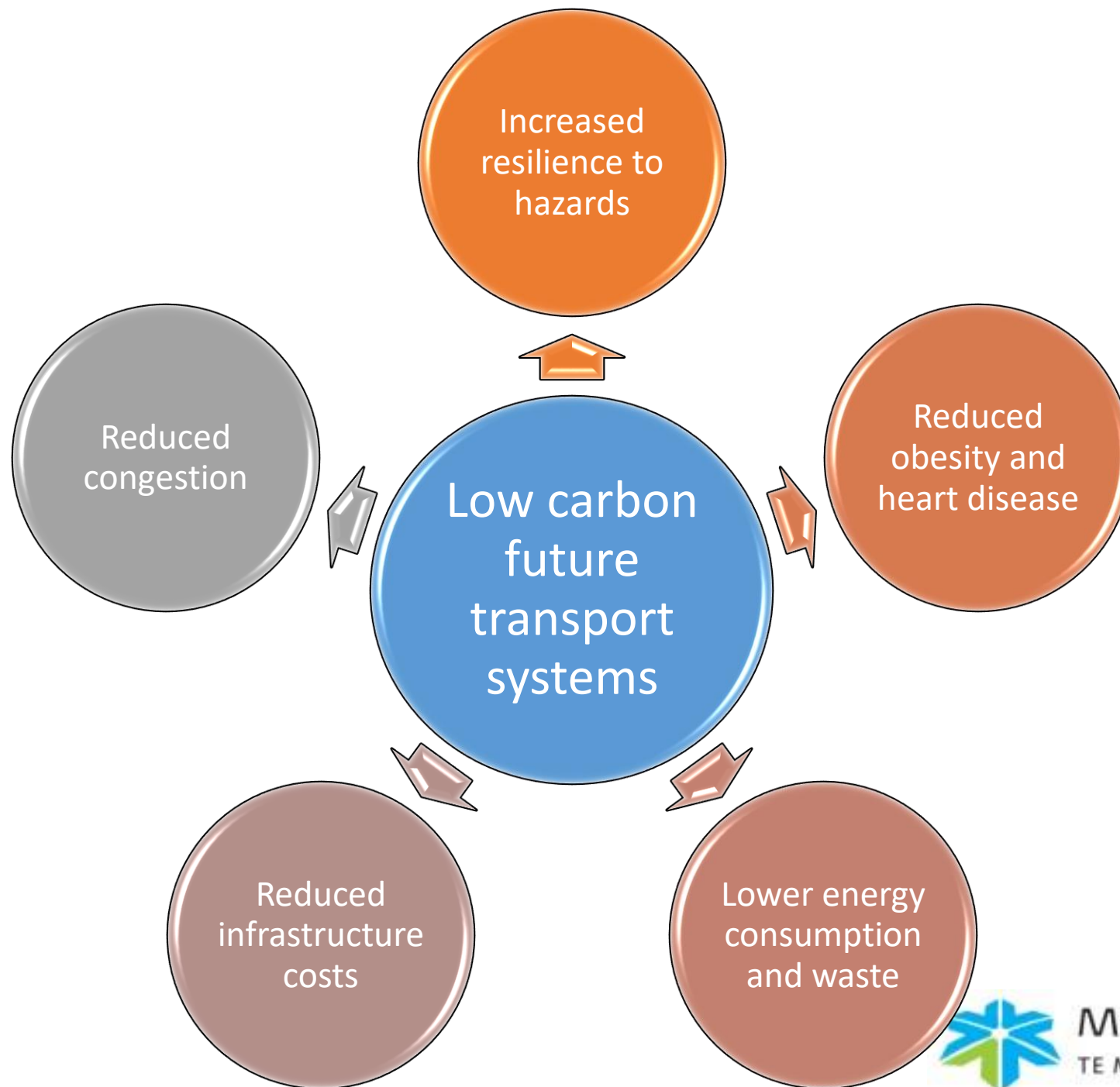
Low carbon
future
transport
systems

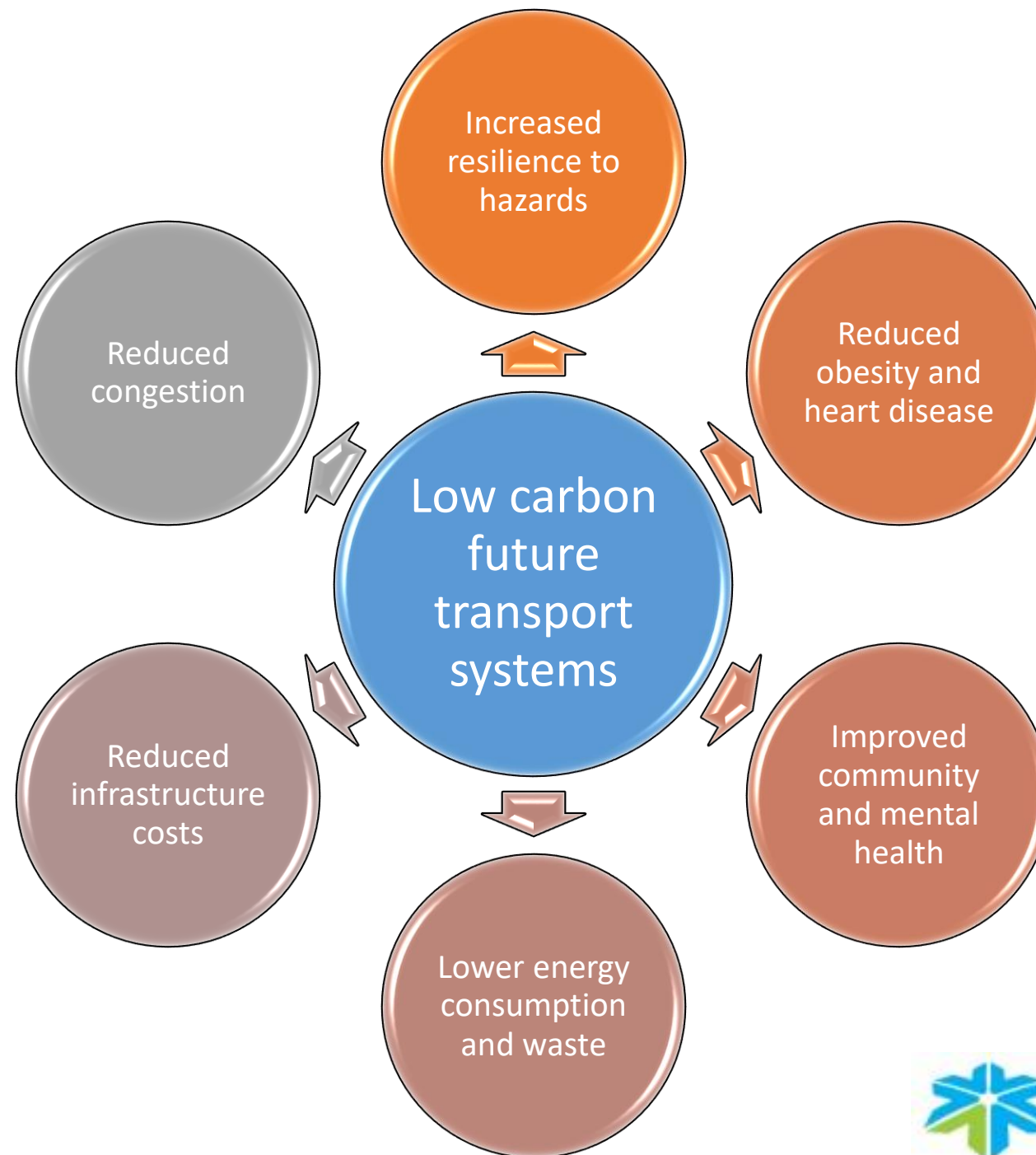


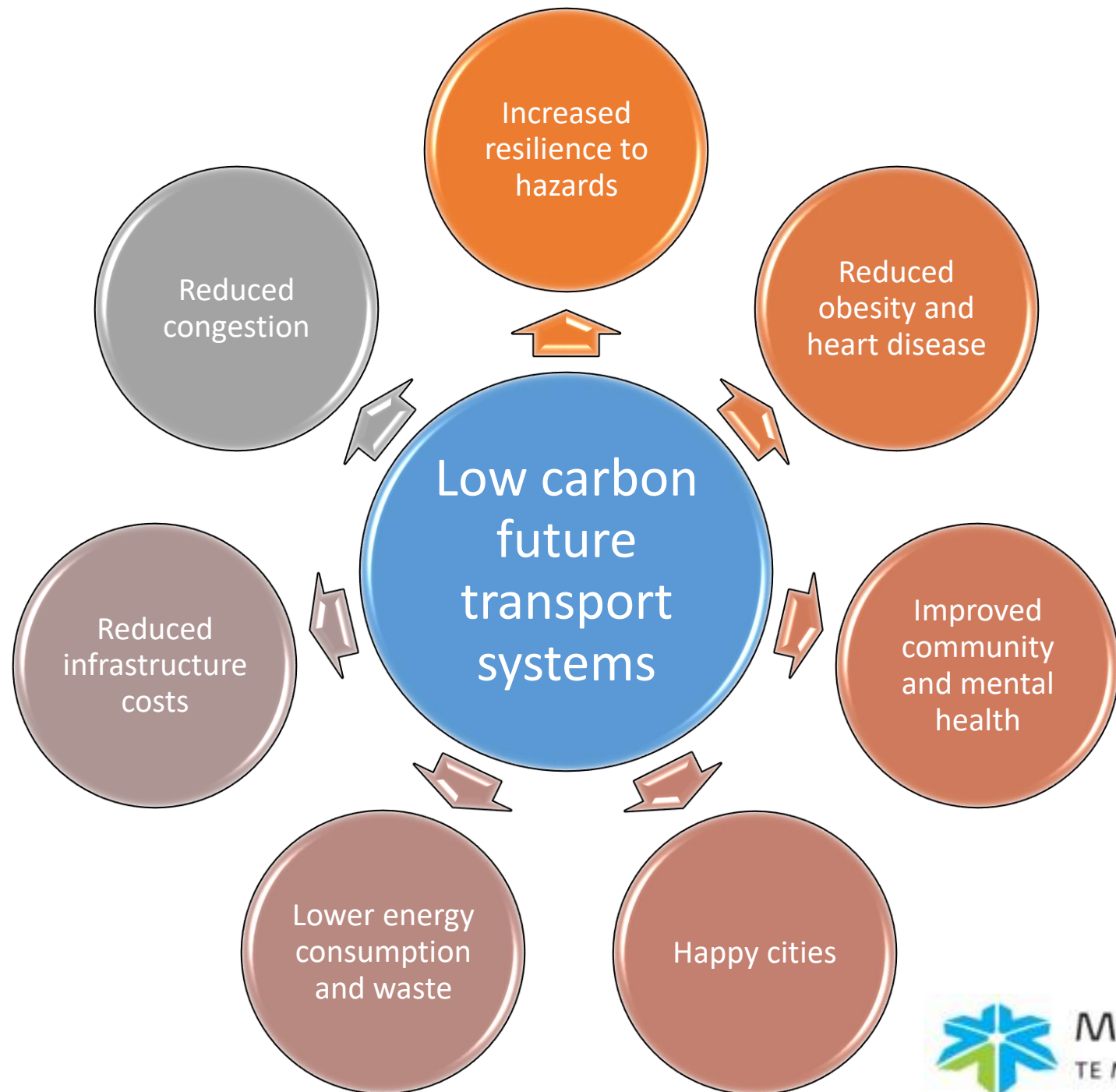












Thanks

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